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(54) Abstract Title
Vehicle visors

(57) A visor comprises an EPP visor body surrounded by a cover material, the visor body being formed from expanded polyolefin particles and the cover being molded to the body. Preferably the cover comprises a laminate of a stretchable sheet material like a PET fabric, vinyl sheet or polypropylene fabric, and a thermoplastic polyolefin which adheres to the EPP body.

Also disclosed is a visor, the body of which is moulded in two halves 52 with a covering material 54 spanning the two halves so as to form a hinge such that the halves are assembled by rotation about the hinge.

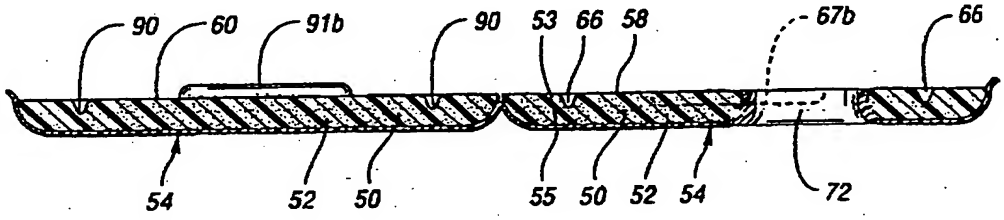

Fig. 3

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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

This print takes account of replacement documents submitted after the date of filing to enable the application to comply with the formal requirements of the Patents Rules 1995

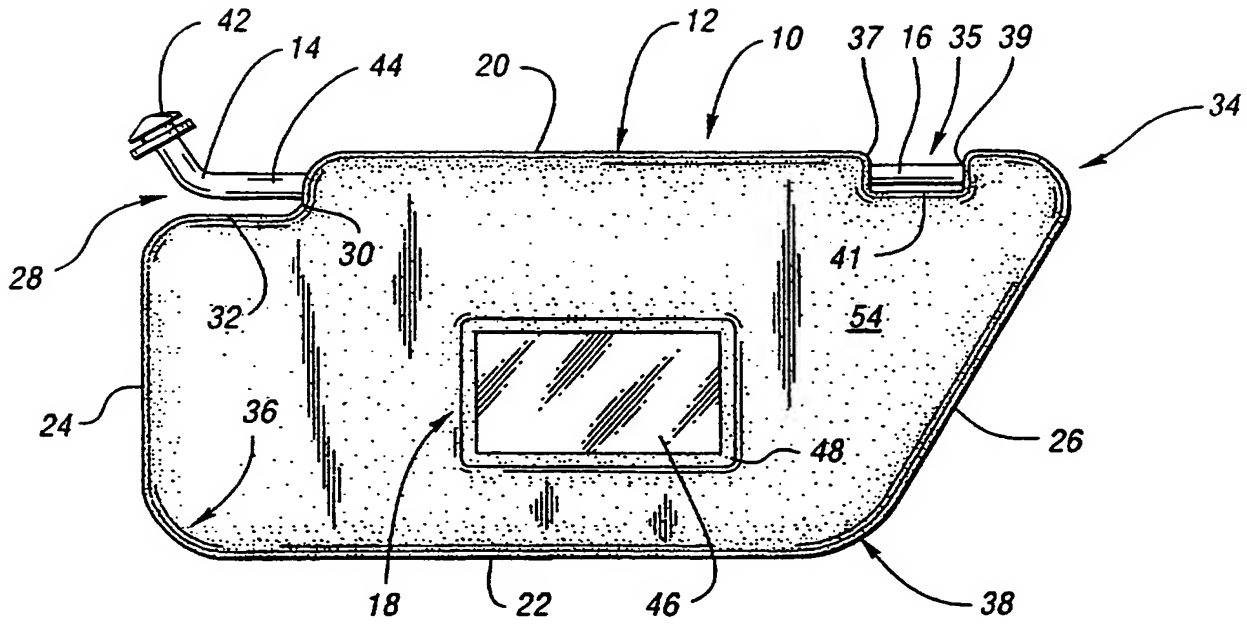

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Fig. 1

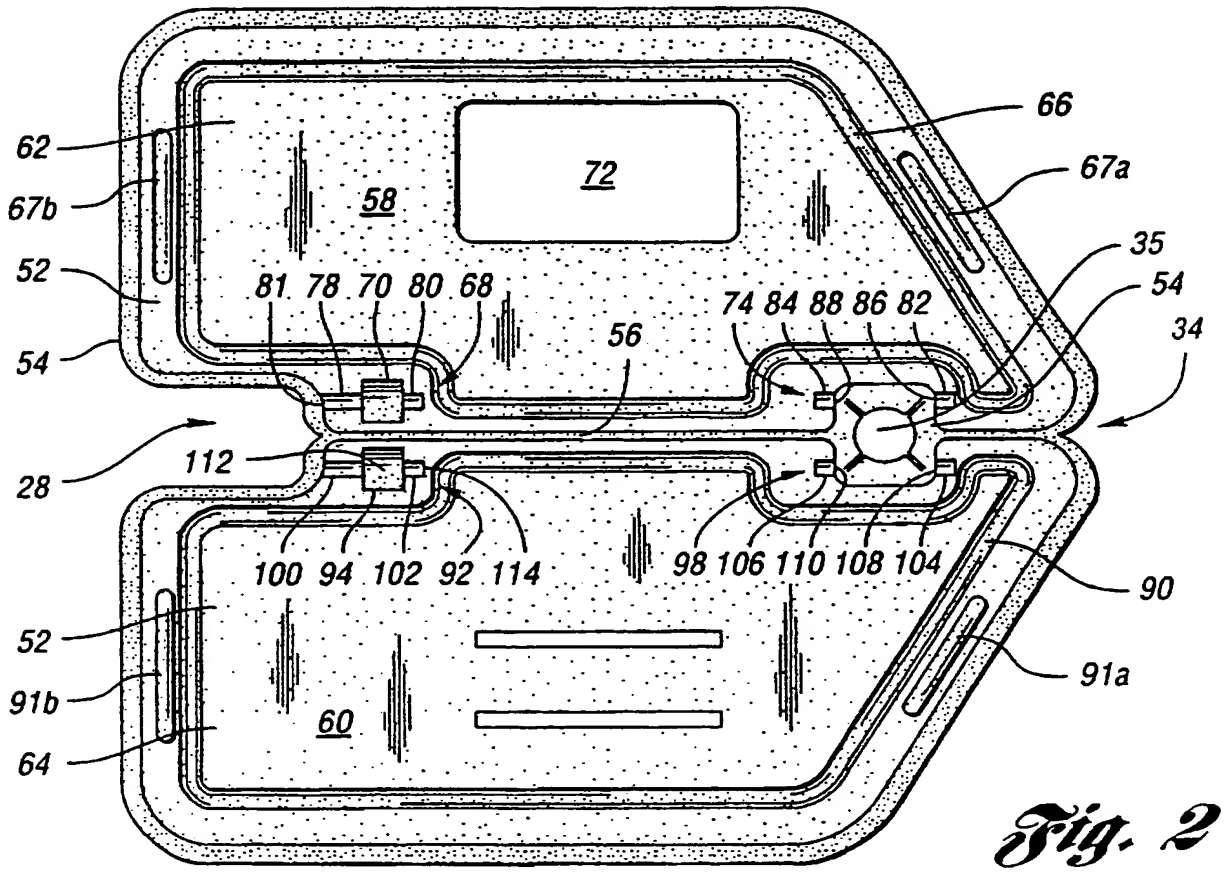

Fig. 2

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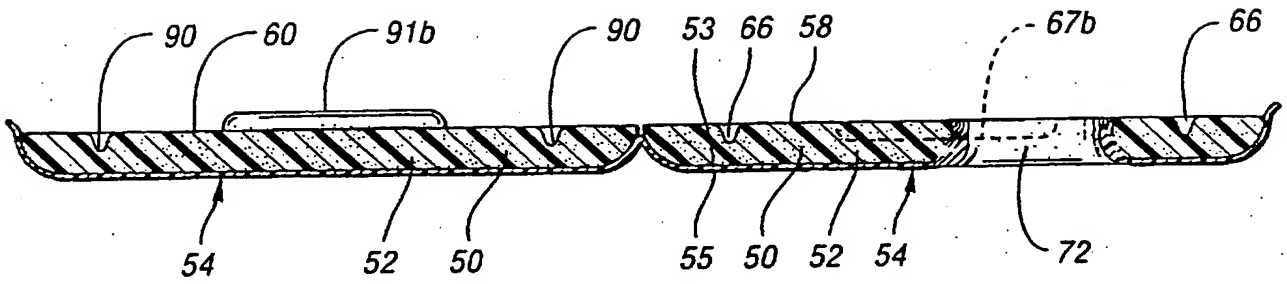

Fig. 3

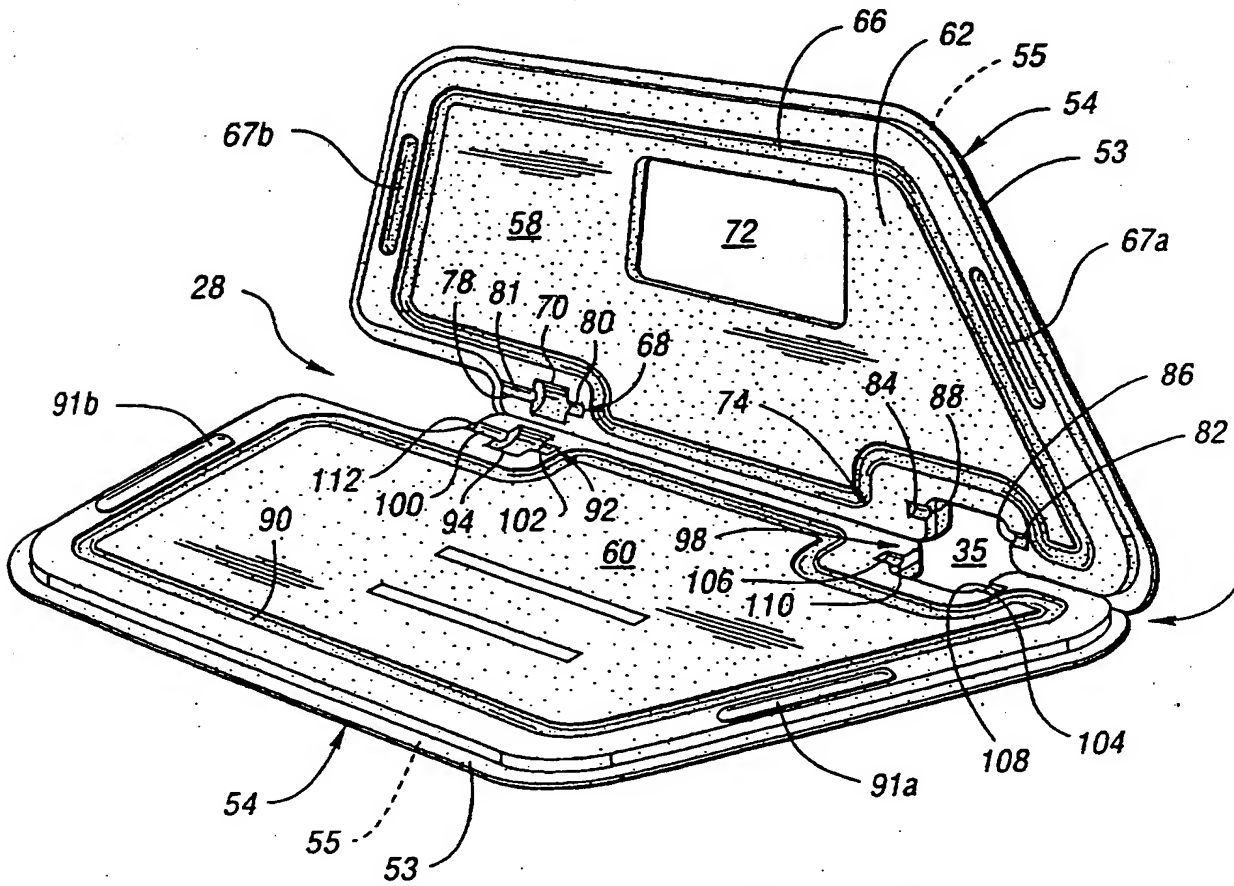

Fig. 4

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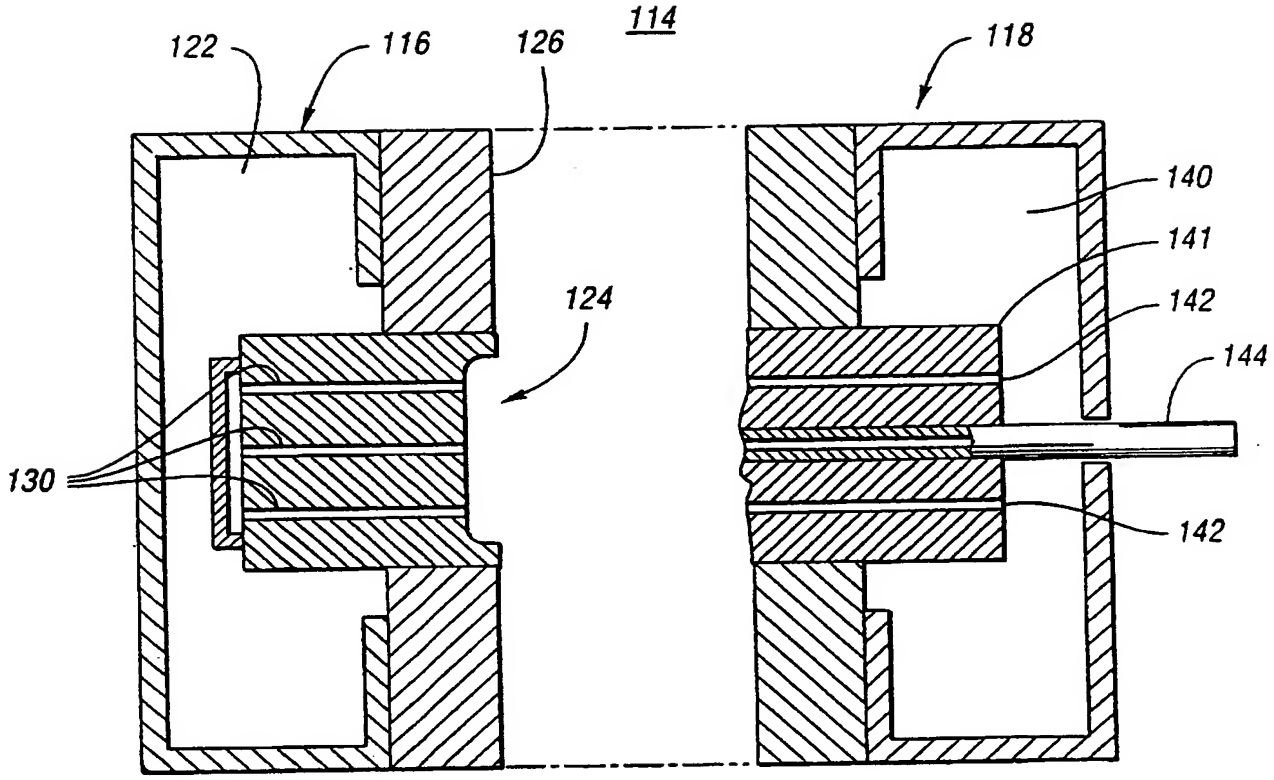

Fig. 5

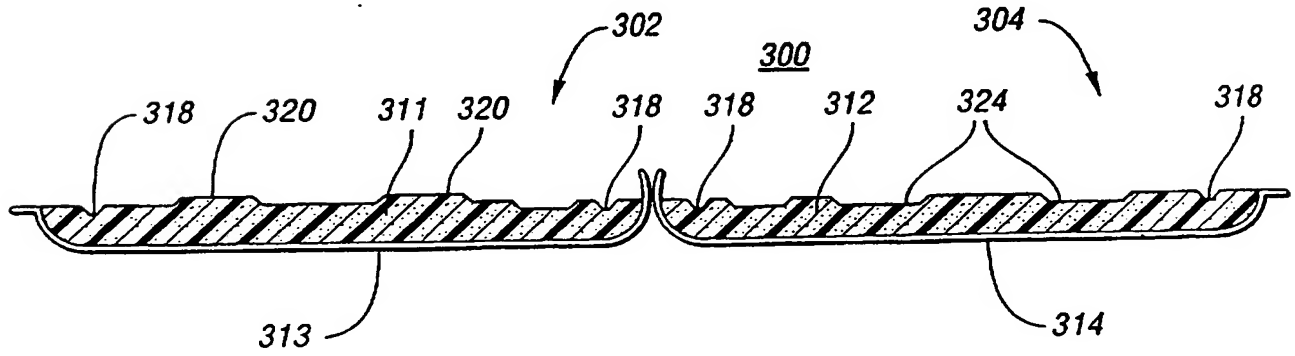

Fig. 7

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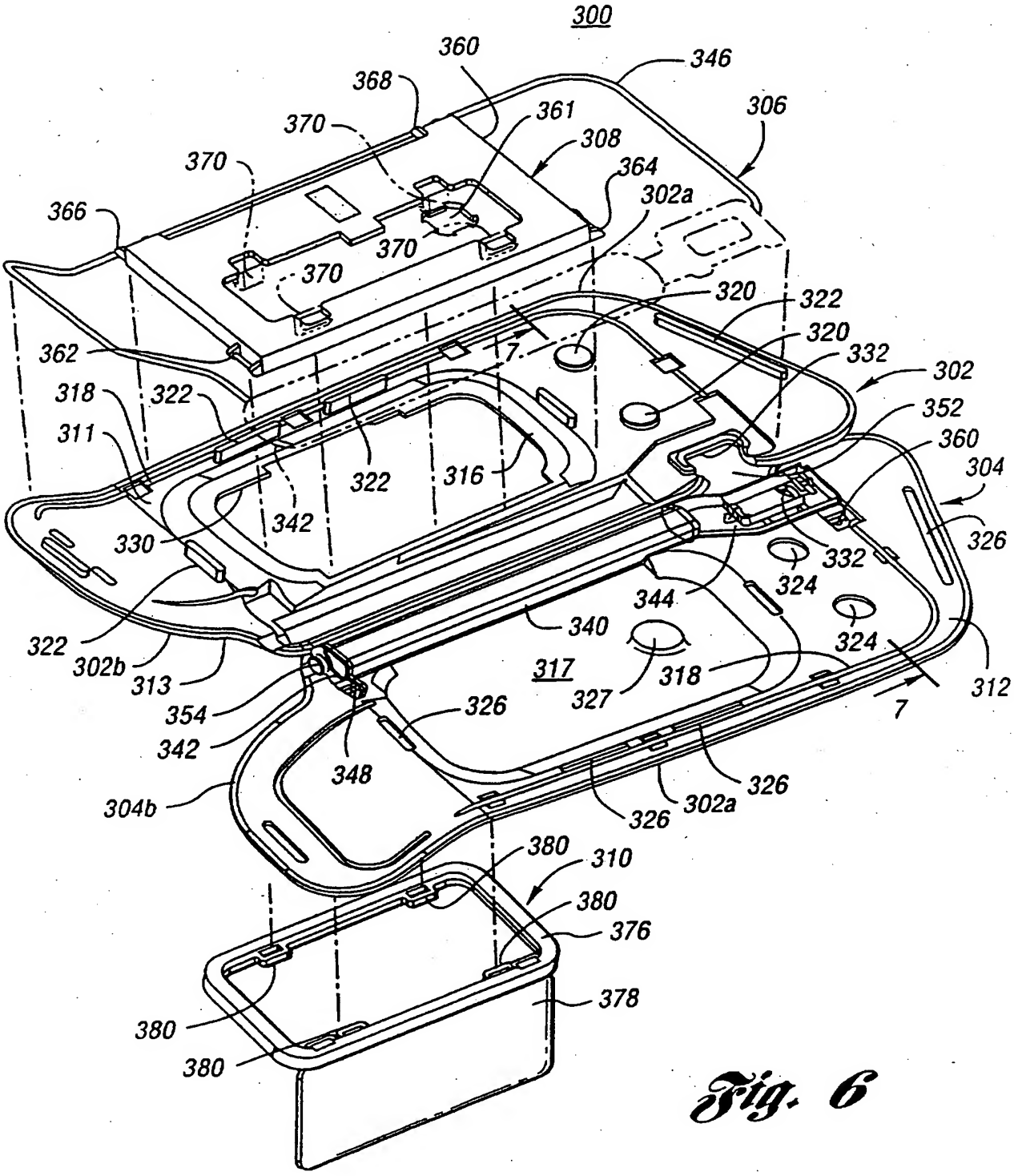

Fig. 6

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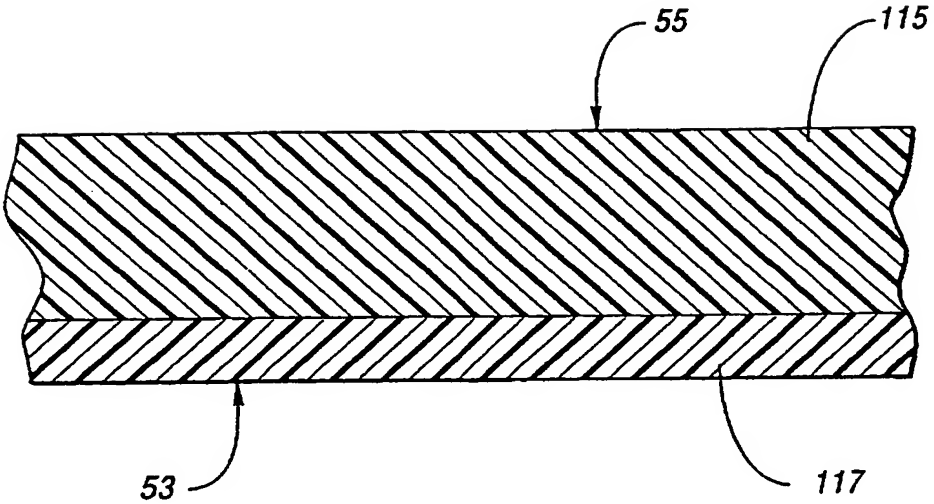

Fig. 8

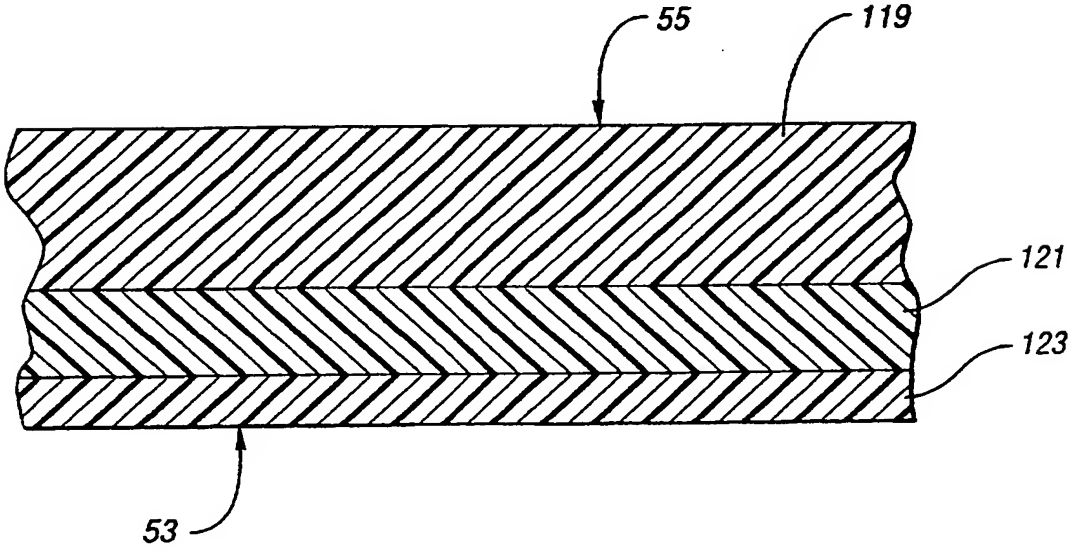

Fig. 9

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VEHICLE VISOR WITH IN-MOLDED EXTERIOR COVER

TECHNICAL FIELD

This invention relates to a vehicle visor; and, more specifically, to a vehicle visor formed of an expanded particle material and including an in-molded exterior cover.

BACKGROUND ART

Vehicle visors are usually provided with a fabric or vinyl cover about the exterior of the visor for aesthetic appeal. There are two general techniques used to provide this exterior cover. The first technique includes wrapping or adhering the exterior cover to the outer surface of the visor after the visor has been fully formed by molding from expanded polyolefin particles (EPP). The exterior cover is usually constructed of a sonically weldable or heat sealable material and is wrapped around the visor and sealed at the edge. The fabric is also trimmed during the edge sealing operation. The sealable fabric tends to be more expensive than more conventional fabrics and the types of material are limited. Another technique includes wrapping the fabric around the halves of a twinshell/clamshell visor and tucking the edges of the fabric in between the halves as the halves are closed. The visor usually comprises a plastic shell. This second technique has the advantage of a greater variety of less expensive fabrics, but it requires a separate assembly process that generally requires more manual labor than the first technique. Both techniques may involve the step of adhesively securing the fabric or vinyl cover to the visor core. This step is labor intensive and expensive.

DISCLOSURE OF INVENTION

The invention relates to a clamshell-type, butterfly-type, or twinshell visor constructed of a low density, low weight expanded polymeric particles forming a body and an external cover in-molded to the body. The cover substantially envelops the body and provides the visor with an aesthetic exterior. Preferably, the cover comprises a stretchable sheet material forming the aesthetic exterior and a thermoplastic olefin (TPO) for bonding the polyolefin sheet material to the EPP body. The stretchable sheet material could be a polyolefin material, PET fabric, polyester, non-woven or knit material.

The cover can be made in several different ways. For example, the cover can comprise a polyolefin sheet material impregnated with the TPO. Alternatively, the cover can be made as a laminate with the sheet material defining an outer layer and the TPO defining an inner layer. Preferably, the sheet material is either vinyl, PET fabric, nylon fabric, or polypropylene fabric.

In another aspect of the invention, the visor body comprises two halves, each of which has an inner surface an outer surface separated by a peripheral edge. When the visor halves are assembled, their respective inner faces are in abutting relationship. The cover is bonded to the outer surface of each of the visor halves and spans a portion of the peripheral edge of each visor halve to form a hinge about which the visor halves can be rotated from an unassembled position to an assembled position, the visor halves inner surfaces are not abutting and in the assembled position the visor halves inner surfaces are abutting.

Preferably, the cover is sized to be greater than the visor halves, permitting the cover to be folded around the peripheral edge of each visor halve and sandwiched between the visor halves inner surfaces when the visor halves are in the assembled position. It is preferred that the cover span the peripheral edge of each visor halve along a top portion to form the hinge at the top portion and the cover is then folded over the remaining portions of the peripheral edge.

BRIEF DESCRIPTION OF DRAWINGS

The invention will now be described with reference to the drawings wherein:

FIGURE 1 is a front elevational view of a visor assembly according to the invention in the context of a clamshell visor with a fabric cover forming a hinge;

FIGURE 2 is a plan view of the visor of Figure 1 in an open, unassembled position;

FIGURE 3 is a cross-sectional view of the visor of Figure 2 taken along line 3-3 of Figure 2;

FIGURE 4 is a top perspective view of the visor of Figure 1 in a partially open, unassembled position;

FIGURE 5 is a cross-sectional view of a die set used in the manufacturing of the visor and shown in an open position;

FIGURE 6 is an assembly view of a second embodiment of the visor assembly according to the invention in the context of a twinshell visor;

FIGURE 7 is a sectional view taken along line 7-7 of the visor of Figure 6, illustrating only the visor body for clarity;

FIGURE 8 is a sectional view of the fabric cover of Figure 1; and

FIGURE 9 is a sectional view of and alternative cover material.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings and to Figure 1 in particular, there is illustrated a vehicle visor 10 according to the invention. The visor 10 comprises a visor body 12, a swivel mounting shaft 14, an outer support pin 16, and a vanity pack 18.

The visor body 12 comprises a top edge 20, a bottom edge 22, a side edge 26. Top edge 20 and side edge 24 are connected at a corner 28. The corner 28 is formed so as to include a notched section for locating the swivel-mounting shaft 14 therein. The corner 28 is formed to define a first wall 30 and a second wall 32. The first wall 30 is substantially perpendicular to top edge 20. The second wall 32 is substantially perpendicular to side edge 24 and first wall 30. The top edge 20 forms an acute angle with side edge 26 so as to form a substantially rounded corner 34. The side edge 24 is connected to bottom edge 22 at a substantially perpendicular angle so as to form a substantially rounded corner 36 therebetween. The bottom edge 22 forms an obtuse angle with side edge 26 so as to form a substantially rounded corner 38 therebetween.

The visor body 12 is further provided with an indentation 35 located along the top edge 20 substantially near the corner 34. The indentation 35 comprises a first wall 37, a second wall 39 and a third wall 41. The first wall 37, the second wall 39, and the third wall are connected to substantially define a U-shaped contour. The first wall 37 and the second wall 39 extend substantially perpendicular to the top edge 20 and the third wall 41 extends substantially parallel with the top edge 20 and perpendicular to the first wall 37 and the second wall 39.

The swivel-mounting shaft 14 is provided with a distally located swivel mount 42. The swivel mount 42 mates with a swivel mount receiver (not shown) within a vehicle interior above either the operator of the vehicle or a vehicle passenger. The swivel-mounting shaft 14 is further provided with a proximal end 44, which extends into the visor body 12 through a swivel mount orifice located

within the first wall 30. The swivel mount 42 is mounted within a swivel mount receiver (not shown) for rotation of the visor body between a stored position in which the visor body is positioned against the vehicle headliner, and a use position in sun-blocking relationship to the windshield, and further in a use position in sun-blocking relationship to a side window of the motor vehicle in conventional fashion.

The outer support pin 16 is located within the visor body 12 in relative proximity to the corner 34 and extends substantially parallel with the top edge 20. The outer support bar 16 is disposed between the first wall 37 and the second wall 39. The outer support bar 16 extends into the visor body 12 through a first orifice and a second orifice located within the first wall 37 and the second wall 39, respectively.

The vanity pack 18 includes a mirror 46 and a mirror bezel 48. The mirror bezel 48 is positioned about the mirror 46. Although not shown, the vanity pack 18 can also include lamps, electrical switches controlling the lamps, a vanity cover and other components normally associated with a visor vanity pack.

Referring now to Figures 1-3, and to Figure 3 in particular, the visor body 12 is of a clamshell-type construction having a top half 58 and a bottom half 60. The top half 58 of the visor body 12 is connected to the bottom half 60 of the visor body 12 by means of a hinge 56 formed by the exterior fabric 54. The visor body 12 is formed of an expandable polyolefin particle ("EPP") or bead inner layer or core 52 and an in-molded exterior fabric 54. The exterior fabric defines an interior surface 53 and an exterior surface 55.

It is currently envisioned that the inner core 52 is formed of EPP and the exterior fabric 54 is constructed of treated polyvinyl chloride or TPO, although any material capable of adhering to the EPP can be used. Referring to Figure 8, the outer layer is preferably a laminate of fabric 115 and TPO 117, with the TPO forming the interior surface 53 and the fabric forming the exterior surface 55. The laminate can be formed by impregnating the fabric with the TPO or by coating one surface of the fabric with the TPO. The fabric can be made of any suitable and

aesthetically pleasing material and is preferably made from non-woven PET. Other suitable exterior fabrics include vinyl sheeting and nylon, and polypropylene, for example.

Figure 9 illustrates an alternative outer layer compromising a laminate and having a PVC layer 121 sandwiched between a first and a second fabric layer to form a trilaminate structure. The first layer 119 forms the exterior surface 55 and the second layer 123 forms the interior surface. The second layer can include cotton cheese cloth, polypropylene, polyethylene foam or film as a replacement for TPO. The first layer is preferably PET, but can include other materials such as polypropylene.

As used herein, the term TPO is defined as a thermoplastic polyolefin material with excellent adhesion properties to EPP, as well as polarity to assist in final trimming operations, namely high frequency welding, for example. The TPO is in the form of a laminated film or could be impregnated on the exterior fabric.

With reference now to Figures 1-4, and to Figures 2 and 4 in particular, the inner core 52 of the top half 58 includes an interior surface 62 while the inner core 52 of the bottom half 60 includes an interior surface 64. The inner core 52 of top half 58 is provided with a partial cylindrical indentation 68 for receiving the support bar 14 therein, a torque spring indentation 70, concentric with the cylindrical indentation, for receiving a conventional torque spring device (not shown) therein, a centrally located aperture 72 for receiving the vanity pack 18 and a partial cylindrical indentation 74 for receiving the outer support pin 16 therein.

The partial cylindrical indentation 68 is located in substantial proximity to the corner 28 of the visor body 12 and is positioned substantially parallel with the top edge 20. The partial cylindrical indentation 68 is provided with an outer indented portion 78 and an inner indented portion 80. The outer indented portion 78 is provided with a distal end 81 located within the first wall 30. The distal end 81 forms a portion of the swivel mount orifice.

The torque spring indentation 70 is substantially cylindrical in shape. The torque spring indentation 70 extends substantially parallel with the top edge 20 and is disposed between the outer indented portion 78 and the inner indented portion 80 of the partial cylindrical indentation 68.

An aperture 72 is centrally located within the top half 58 of the visor body 12 and is substantially rectangular in shape. The aperture 72 extends through the inner core 52 and the layer or expandable polyolefin beads of the visor body 12 and is used to mount the mirror 46.

The interior surface 62 of the top half 58 also includes a channel 66 adapted to receive a portion of the structural stiffener (not shown), such as a wire frame, of the type commonly known in the visor field. Positioning slots 67a, 67b are provided on opposite side edges of the top half 58 to aid in aligning the top and bottom halves 58,60.

The partial cylindrical indentation 74 is provided with first portion 82 and a second portion 84. The first portion 82 is provided with a proximal end 86 while the second portion 84 is provided with a proximal end 88. The proximal end 86 of the first portion 82 and the proximal end 88 of the second portion 84 are located within the first wall 37 and the second wall 39 of the indentation 35, respectively, and form a portion of the first orifice and the second orifice, respectively.

The bottom half 60 of the visor body 12 is provided with a partial cylindrical indentation 92, a torque spring indentation 94 and partial cylindrical indentation 98. The partial cylindrical indentation 92 is provided with an outwardly extending portion 100 and an inwardly extending portion 102. The outward portion 100 is provided with a distal end 112 located within the first wall 30. The distal end 112 forms a portion of the swivel mount orifice. The inward portion 102 has a distal end 114. The torque spring indentation is substantially cylindrical in shape. The torque spring indentation 94 extends substantially parallel with the top edge 20 and is disposed between the outward portion 100 and the inward portion 102 of the

partial cylindrical indentation 92. The central axis of the torque spring indentation 94 and the central axis of the partial cylindrical indentation 92 are coincident.

The partial cylindrical indentation 98 is provided with a first portion 104 and a second portion 106. The first portion 104 and the second portion 106 of the partial cylindrical indentation 98 are provided with a proximal end 108 and a proximal end 110, respectively. The proximal end 108 and the proximal end 110 form a portion of the first orifice and the second orifice, respectively.

The interior surface 64 of the bottom half 60 also includes a channel 90, complementary to channel 66, adapted to receive a portion of the structural stiffener (not shown). Positioning tabs 91a,91b are provided on opposite side edges of the bottom half 60. The positioning tabs 91a,91b are adapted to be received within the positioning in slots 67a,67b, respectively, to align the two visor halves 58,60 when assembled.

Figure 5 diagrammatically illustrates a two-piece mold set 114 having a first mold half 116 and a second mold half 118 in which the visor body 12 is molded. The second mold half 118 is fixed while the first mold half 116 reciprocates with respect thereto. The first mold half 116 comprises a steam chest 122, a mold/cavity 124, a cavity plate 126, and a plurality of vacuum vents 130. The visor is molded in two halves in multiple cavities. Only one cavity is shown for purposes of illustration. The other cavities have a similar configuration.

The second mold half 118 comprises a steam chest 140, a mold insert 141 with a plurality of core vents 142, and an injector 144 for injecting the EPP beads. The injector 144 extends downwardly through the mold insert 141. The injector 144 has a diameter large enough for the unencumbered flow of EPP beads therethrough.

Referring to Figure 5, in operation, the second mold half 118 begins in an open position, away from the first mold half 116.

The exterior fabric 54 is positioned on the mold cavity 124. Vacuum pressure from the vacuum vents 132 is applied to the mold cavity to draw the fabric 54 tightly against the mold cavity 124. The interior surface 53 of the exterior fabric 54 is preferably treated with an adhesion promoter in order to ensure adequate bonding with the expandable polyolefin beads.

The first mold half 116 is moved toward the second mold half 118 until the mold halves are slidably separated from each other, which is known as a "crack filling". Alternatively, the mold halves can be closed completely, which is known as "pressure filling".

The mold set or fabric can be pre-heated at that time by steam or electrical heating in a well-known manner. If desired, the mold halves can be closed during the pre-heating. Preferably, the mold or fabric pre-heating is accomplished by introducing steam at 0.1 - 2.0 bars (100° - 130°C). The pre-heating of the fabric increases the fabric flexibility. If needed, the condensate outlet (now shown) is then opened to vent the mold cavity and vacuum pressure can be applied to the cavity to aid in the venting.

If open, the condensate outlet is then closed and EPP beads are then introduced into the mold cavity 124 through the injector 144. The beads are then pre-heated by supplying steam at about 3 bar of pressure (approximately 135 and 140°C) for about 6 seconds through the vents 142. This pressure and time is insufficient to fuse the beads together. The pre-heating of the EPP beads is an optional step that provides a more thorough fusing of the beads.

If the optional pre-heating step is used, the mold is purged to remove condensate through a condensate outlet (not shown). Next, steam at 3-4 is introduced and exhausted for about 5 seconds during this step. The condensate outlet is then closed and the steam introduction is continued for another 5 seconds. The steam is maintained at 3-4 bar until the beads are fused. If the cavity is being crack filled, the first mold half 116 is moved towards the second mold half 118, compressing the beads while they are fused. If the pressure filling method is used,

the mold halves will be closed prior to the introduction of the EPP beads, and prior to the introduction of steam at 3-4 bars. Upon completion closure of the mold set 114, the mold insert 141 extends into the mold cavity 124.

The mold cavity 124 is then vented to remove the steam and condensate by opening the condensate outlet and withdrawing fluid from the cavity. The mold is then allowed to cool and any residual condensation is removed through the condensate outlet. The first mold half 116 is then withdrawn and the visor body 12 is ejected from the first mold half 116.

Returning to Figures 2 and 4, in assembly, the mold halves 58,60 with the in-molded skin 54 are removed from the mold. The fabric is folded about the mold halves 58,60 and temporarily secured preferably by adhesive, to the inner surfaces 62,64. The mold halves 58,60 are folded about the fabric hinge 56 until the positioning tabs 91a,91b are received in the positioning slots 57a,57b. The receipt of the positioning tabs 91a,91b in the positioning slots 57a,57b align the two mold halves 58,60 and help secure them together. It should be noted that although the mold halves are shown being connected by the fabric (fabric hinge), it is within the scope of the invention and an alternative for the two halves to be formed as two halves without a fabric hinge subsequently and join together at the edges.

The exterior fabric 54 is thereby secured between the top half 58 and the bottom half 60, thereby eliminating the necessity of heat welding or sewing the fabric about the outer circumference of the visor body 12. The visor halves are preferably joined together while they are warm so that they dry together. In this manner, the visor halves are joined more securely.

To finish the visor, alternative finishing steps are taken depending on the visor construction. If the fabric is made from a heat fusible fabric, such as TPO, the fabric is trimmed and heat welded at the side edges of the visor in a conventional fashion. If the visor halves are separate with unconnected fabric pieces, the edges of the fabric pieces which are heat welded at the edge of the visor or, the edges can be folded over the inner cores of the visor halves and clamped therebetween as the

visor halves are joined together. The visor can be formed with an edge bead indentation during the molding process as described above. Any edge bead of the fabric can then be received in the indentation for a smoother visor edge.

The vanity pack 18 is mounted within the aperture 72. Several means for fastening the vanity pack 18 within the aperture 72 can be utilized for this purpose, including snapping the vanity assembly 18 to the visor body 12 or the rigid inner core 64 of the bottom half 60 to assist in holding the visor halves together. The vanity pack 18 can also be secured into position within aperture 72 by sonically welding the mirror bezel 48 to the visor body 12 or the rigid inner core 64 of the bottom half 60 either by convention heating or ultrasonic means.

Figures 6 and 7 illustrate a second embodiment visor 300 according to the invention. The visor 300 is of the twinshell-type and comprises a first shell or visor half 302 and a second shell or visor half 304, which together form the body of the completed visor 300. The visor halves 302,304 are molded using the previously described pressure fill method. The visor 300 further comprises a structural frame 306 and a vanity assembly 308, which are connected together to form a subassembly. the visor 300 also includes a door assembly 310, which secures the vanity assembly 308, and, thus, the structural frame 306 to the first visor half 302. In shape, the first and second visor halves 302,304 each have an elongated planform comprising a planar body 302a,304a with an upturned end 302b,304b. The first visor half 302 has an elongated opening 330 extending through the planar portion. Both visor halves 302,304 have a notch 332 along an upper edge.

Each of the first and second visor halves 302,304 comprise a core 311,312 (Figure 7) and a covers 313,314. The core is preferably made from EPP and the cover includes a layer of fabric or other material, which is bonded to the cores, 311,312. The cover material can include an outer layer of vinyl, PET fabric, or nylon fabric and a layer of thermoplastic olefin (TPO). The TPO is used to bond the outer fabric or vinyl layer to the EPP cores, 311,312 during molding. Alternatively, the cover 313,314 can also be made from a layer of PET fabric backed

by a layer of PVC, which is also backed by a layer of cotton or other fabric, polypropylene, polyethylene foam, or polyethylene film.

The inner surface of the cores 311,312 opposite the covers 313,314 can be formed with a variety of indentations and projections to accommodate various visor components, such as the structural frame 306 and a vanity assembly 308 and to aid in the alignment of the first and second visor halves 302,304. For example, the core 311 has a vanity assembly projection 316, which defines the opening 330, and the core 312 has a vanity assembly depression 317. Both cores 311,312 have a structural frame indentation 318, which is adapted in size and shape to accommodate the structural frame 306 and vanity assembly 308 when the visor 300 is assembled. Additionally, the cores 311 of the first visor half 302 includes multiple rounded projections 320 and elongated projections 322 that correspond to rounded indentations 324 and elongated indentations 326 on the core 312 of the second visor half 304 to aid in the alignment of the first and second visor halves 302,304 during assembly. The second visor half 312 has a visor housing projection 327.

Although the particular type of structural frame 306 and vanity assembly 308 are not important for purposes of the invention, a brief description of these elements should be helpful for a complete understanding of the invention. The structural frame 306 comprises a tubular visor arm support beam 340 with open ends that receive a first plug 342 and a second plug 344, respectively. A wire frame 346 extends between the first plug 342 and second plug 344. The first and second plugs 342,344 have spring clips 348,350, respectively, for attaching to the wire frame 346 and the vanity assembly 308. The second plug 344 includes a support finger 352. The first plug 342 has an opening 354 in which is received the support arm (not shown), connecting the visor to the vehicle.

The vanity assembly 308 comprises a housing 360 having an alignment opening 361 and from which extend catches 362,364 onto which the spring clips 348,350, respectively, clip to fasten the visor arm support beam 340 to the vanity assembly 308. The housing 360 further includes spring clips 366,368, which are adapted to receive a portion of the wire frame 346. The housing 360 also

includes multiple spring fingers 370 positioned about its surface facing the opening 330 in the first visor half 302.

The door assembly 310 comprises a trim bezel 376 to which is hingedly mounted a door 378. The trim bezel 376 includes multiple catches 380, which are adapted to receive the spring fingers 370 of the vanity assembly housing 360 during assembly of the visor.

To assembly the visor 300, the visor arm support beam 340, wire frame 346, and vanity assembly housing 360 are all clipped together by snapping the various spring clips over their corresponding catches or wire frame to form a subassembly of the structural frame 306 and vanity assembly 308. The subassembly is then positioned on the first visor half 302 so that the vanity assembly 308 is received within the vanity assembly indentation 316 and the structural frame 306 is received within the structural frame indentation 318. In this position, the spring fingers 370, extending from the vanity assembly housing 360 extend through the opening 330 of the first visor half 302. The trim bezel 376 of the door assembly 310 is positioned so that the trim bezel catches 380 are aligned with the spring fingers 370. The trim bezel 376 is then pressed toward the vanity assembly housing 360 until the spring fingers 370 snap within the catches 380 to sandwich a portion of the vanity projection 316 between the trim bezel 376 and the vanity assembly housing 360, effectively securing the structural frame 306, vanity assembly 308, and door assembly 310 to the first visor half 302.

The first visor half and second visor half 302,304 are then brought together to complete the assembly. As the visor halves 302,304 are brought together, the rounded projections 320 and elongated projections 322 on the first visor half 302 are aligned with the corresponding rounded indentations 324 and elongated indentations 326 on the second visor half 304. Similarly, the vanity assembly projection 327 on the second visor half 304 is aligned with the vanity assembly opening 361. Once the various projections, indentations, and openings are aligned, the two visor halves are then pressed together to urge the projections within the

corresponding openings, ensuring the proper alignment of the first visor half 302 and second visor half 304.

Once the visor halves 302,304 are properly aligned and compressed together, the visor halves 302,304 are then sealed together by simultaneously trimming away the excess cover material and ultrasonically welding the cover material on the first visor half to the cover material on the second visor half by a well known technique.

While particular embodiments of the invention have been shown, it will be understood that the invention is not limited thereto since modifications may be made by those skilled in the art, particularly in light of the forgoing teachings. Reasonable variation and modifications are possible within the scope of the forgoing disclosure of the invention without departing from the spirit of the invention.

WHAT IS CLAIMED IS:

1. In a vehicle visor comprising a body with an in-molded cover, the body providing structural integrity for the visor and being made from heat fused expanded polyolefin particles ("EPP"), and the cover substantially enveloping the body and providing the visor with an aesthetic exterior, the improvement comprising:

the cover comprising a stretchable sheet material forming the aesthetic exterior and a thermoplastic olefin (TPO) for bonding the stretchable sheet material to the EPP body.

2. The improved visor according to claim 1, wherein the stretchable sheet material is impregnated with the TPO.

3. The improved visor according to claim 1, wherein the cover is a laminate with the stretchable sheet material defining an outer layer and the TPO defining an inner layer.

4. The improved visor according to claim 3, wherein the stretchable sheet material is one of the group consisting of vinyl, PET fabric, nylon fabric, and polypropylene fabric.

5. The improved visor according to claim 1, wherein the body comprises two halves, each visor half having an inner surface and an outer surface separated by a peripheral edge, and the cover is bonded to the outer surface of each visor half and spans a portion of the peripheral edge of each visor half to form a hinge about which the visor halves can be rotated from an unassembled position, where the visor halves inner surfaces are separated, to an assembled position where the inner surfaces are abutting.

6. The improved visor according to claim 5, wherein the cover is sized to be greater than the visor halves and the cover folds around the peripheral edge of each visor half and is sandwiched between the visor halves inner surfaces when the visor halves are in the assembled position.

7. The improved visor according to claim 6, wherein each visor half peripheral edge has a top portion, a bottom portion, and opposing end portions, and the cover spans the peripheral edges at the top portion to form the hinge and is folded over the bottom and end portions.

8. A vehicle visor comprising:

a body for providing structural integrity for the visor, the body comprising opposing mold halves, and each mold half having an inner surface, an outer surface, and a peripheral edge separating the inner and outer surface; and

a cover substantially enveloping the body and having an exterior surface and an interior surface, the exterior surface providing the visor with its aesthetic appearance, the interior surface being bonded to the outer surface of the mold halves, and a portion of the cover spans a portion of the mold halves to form a hinge about which the visor halves can be rotated from an unassembled position, where the visor halves inner surfaces are separated, to an assembled position where the inner surfaces are abutting.

9. The visor according to claim 8, wherein the cover is sized to be greater than the visor halves and the cover material folds around the peripheral edge of each visor half and is sandwiched between the visor halves inner surfaces when the visor halves are in the assembled position.

10. The visor according to claim 9, wherein each visor half peripheral edge has a top portion, a bottom portion, and opposing end portions, and the cover spans the peripheral edges at the top portion to form the hinge and is folded over the bottom and end portions.

11. The visor of claim 8, wherein the cover comprises a laminate having a PVC layer sandwiched between a first and second fabric layer to form a trilaminate structure.

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17

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Application No: GB 9909265.2 **Examiner:** Keith Kennett
Claims searched: 1-7 **Date of search:** 12 August 1999

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Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

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Int Cl (Ed.6): B29C 39/10, 43/18, 45/14; B29D 31/00; B60J 3/02

Other: Online: EPODOC, WPI, JAPIO

Documents considered to be relevant:

Category	Identity of document and relevant passage		Relevant to claims
X	GB 2000074 A	(FAURE) see page 1 lines 17-48	1
X	GB 1041710	(PERFECTA) see page 1 lines 48-59	1
X	WO 98/00303 A1	(DONNELLY) see page 3 lines 23-26 & claim 16	1
X	US 5292476	(JONES) see whole document	1

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.

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